

REMARKS

I. Allowable Subject Matter

Claims 3, 7, 9 to 10 were only objected to as dependent on a rejected base claim but would be allowable if rewritten in independent form including all limitations of the base claim and any intervening claims.

Applicants gratefully acknowledge the indication of allowable subject matter. Claim 1 has been amended to further distinguish it from the prior art by addition of functional wording regarding the critical features of the mat disclosed in the applicants' specification. Also a new more limited claim 18 containing the features of claims 1 and 16 as well as similar added functional limitations have been filed. It is respectfully submit that the novel subject matter in amended claim 1 and new claim 18 should not be rejected as obvious over the cited prior art.

II. Obviousness Rejection based on Keeffe, et al

Claims 1 to 2, 5, 8, 12 to 13 and 15 to 16 were rejected as obvious under 35 U.S.C. 103 (a) over Keeffe, et al (U.S. 4,888,517).

Keeffe, et al, (U.S. 4,888,517) discloses several different embodiments of a double-enveloped light comprising a shield surrounding a high pressure light - source capsule within a thick-walled outer envelope. All embodiments of the

double-enveloped light include means for shielding the outer envelope of the light from an explosion of the light-source capsule, which is designed to absorb and dissipate at least a portion of the energy of a capsule burst.

However the means for shielding the outer envelope of the light always comprises a hollow right circular cylinder that surrounds the light-source capsule and is arranged in the light between the capsule and the outer envelope (figs. 3 to 5, column 5, lines 54 to 68). It is designed to provide some protection from light-source capsule burst (e.g. see description regarding fig. 1). Obviously the shield 28 must be made of a material that transmits light. In the case of the working example at the end of the specification of Keeffe, et al, the shield is made of quartz, which is transparent, and is not a mesh or a fleece of any sort of material.

However Keeffe, et al, teaches that the thickness of both shield and outer envelope should be large enough to contain any burst of the light-source capsule, but also that the outer envelope thickness should not be so large that the light is made too heavy. As a result there is a trade-off so that with standard wall thickness for the outer envelope and a 1 mm shield thickness, containment fails 50 % of the time. Thus the thickness of the shield must be comparatively large. The reference also teaches that increasing thickness of the shield reduces luminous efficiency of the lamp. Thus in some cases the shield arrangement of the reference does not completely contain the burst and only provides partial protection (column 6, line 34 to column 7, line 25).

A wire or glass mesh is provided around the shield in the embodiment of figure 3 as noted in the Office Action to provide additional burst protection, but the detailed description of figure 3 clearly states that this mesh that surrounds the e.g. quartz shield 28 would reduce the transmitted light and the light efficiency, like the shield 28 itself. With respect to the means of attachment the detailed description of Keeffe teaches that the mesh is attached with straps or embedded in the glass of the shield, which adds additional production steps. Clearly the mesh size of the wire mesh used in fig. 3 must not be so small that a significant amount of light is prevented from passing through it. In other words, it cannot mask or screen light from the light source.

The embodiments of figs. 12 and 13 are most relevant to the present invention claimed in claim 1 because the light-source capsule is mounted with the shield closely surrounding it in a funnel-shaped light reflector that is similar in shape to the reflector shown in the figure presented in the present application. However the reflector shown in fig. 12 is not completely parabolic shaped, since it has two segments. In contrast applicants' preferred embodiment claimed in new claim 17 is parabolic shaped.

Amended claim 1 has now been limited to claim a reflector having a protective jacket on its outer surface, which comprises a mat (not merely "mat-shaped"). A patentee is his own lexicographer and the applicants' specification limits the definition of "mat" to an Encyclopedia definition, namely that a mat is a braided or interlaced natural or chemical fibrous material and/or wire. Furthermore the amended claim 1 states that the mat is arranged and formed

so that it masks or screens scattered light from the reflector (light protective) and to provide a uniform temperature distribution in the reflector to avoid thermo-mechanical stresses as well as to protect from explosive destruction of the light source. In order to effectively mask or screen scattered light passing through the base body it must be of sufficient thickness and have a sufficiently close weave or small mesh size. Basis for these added functional limitations appears on page 5, lines 1 to 4 and lines 15 to 19, and page 8, lines 7 to 12. Also note the teaching regarding the meaning of "light protective" on pages 3 and 4 of applicants' specification, especially page 3, line 20 and following.

In contrast, especially to the embodiments of figs. 12 and 13, the reflector claimed in applicants' amended claim 1 provides a protective jacket on the outer surface of the reflector. Thus the means of protection against an explosion of the light source itself are provided on the outer surface of the reflector so that the surrounding area around the reflector is protected. This has the great advantage that the protective jacket can be made as strong or as thick as possible without impairing the lighting or light generation efficiency of the light containing the reflector. Thus it appears to be possible to provide effective burst protection in all cases according to figure 1 without reduction in the light yield produced by the light.

The Office Action alleges that it would be obvious to provide the claimed protective jacket comprising a mat on the outer surface of the base body in fig. 12 "in order to enhance the light dispersing properties and to further reinforce the lamp".

It is admittedly desirable and obvious to try to improve the light dispersing properties and to provide further reinforcement of a light to avoid damage from bursting of the light source, but there are several other possible ways to further reinforce the light and enhance the light dispersing properties besides providing a protective jacket on the outer surface of a reflector, especially a protective jacket that comprises a mat as defined in applicants' specification. These other ways involve providing interior and exterior coatings of plastic polymers on the surfaces of the base body, increasing the thickness of the base body, appropriate choice of composition of the glass or glass-ceramic base body and tempering or pre-stressing the base body by heat treatment or chemical treatment and using other types of jackets of various thickness and chemical composition.

In fact, the reference, Keefe, does teach reinforcing the outer envelope (not the reflector) of a lamp by providing a resin coating on the outer surface of the outer envelope in column 10 as noted in the Office Action, but this outer envelope is not the base body of a reflector. However this solution for reinforcing the base body of a reflector is no more than the prior art solution described on page 4 of the applicants' specification. The applicants' mat is an improvement because a second coating to provide light protection is not necessary and because this sort of plastic coating does not provide the desired reduction in thermal stresses in the reflector. Furthermore it is subject to tears under thermal load as explained on page 4 of applicants' specification.

There are a great many ways to strengthen or reinforce the base body of a reflector. The issue here is whether or not there is a hint or suggestion in the reference of reinforcing or strengthening the base body and improving light dispersion by providing a mat on the outer surface, which is shaped and formed to block scattered light from the reflector and to provide a more uniform temperature distribution in the reflector as well as provide additional strength to the base body so that it can withstand an explosion of a high-pressure gas discharge lamp held in its receptacle.

The answer is that the reference, Keeffe, provides not a single hint or suggestion that the base body of a reflector should be reinforced with a mat on its outer surface that has the claimed properties according to applicants' amended claim 1.

It is well established by many U. S. Court decisions that to reject a claimed invention under 35 U.S.C. 103 there must be some hint or suggestion in the prior art of the modifications of the disclosure in a prior art reference or references (here Keeffe) used to reject the claimed invention, which are necessary to arrive at the claimed invention. For example, the Court of Appeals for the Federal Circuit has said:

"Rather, to establish obviousness based on a combination of elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant...Even when obviousness is based on a single reference there must be a showing of a suggestion of motivation to modify the teachings of that reference.."*In re Kotzab*, 55 U.S.P.Q. 2nd 1313 (Fed. Cir. 2000). See also M.P.E.P. 2141 [underlining ours]

In the case of the disclosures of Keeffe there is no hint in this reference that the outer surface of the reflectors of figs. 12 and 13 should be reinforced with a mat. Also there is no hint that the resin coating of fig. 10 on the outer envelope should either include or be replaced by a mat.

For that reason there is no suggestion in Keeffe or the art generally of the combination of features in applicants' amended claim 1 and also claim 18.

Furthermore the functional limitation that the mat provide light protection, i.e. mask the scattered light passing through the base body (which is transparent glass or glass ceramic) in some embodiments means that the mat must have a sufficient thickness and sufficiently small mesh size. This is the opposite from the teaching in the reference, Keeffe, that the wire mesh shown in figure 3 must not block a substantially portion of the light produced by the light source.

In other words, the proposed modification in the Office Action would result in changing the wire mesh of Keeffe in such a manner that it could not perform its intended function. It is well established that a proposed modification of a disclosed device in a prior art reference necessary to arrive at a claimed invention, which is required under 35 U.S.C. 103 (a) to reject the claimed invention over the prior art reference, cannot modify the device in such a manner that it cannot perform its intended function. See MPEP 2143.01. The wire mesh of Keeffe should not mask or block light because that will lower the light yield of the lamp significantly, but the mat of the applicants' claimed invention must mask or block scattered light to provide light protection according to the amended claim

1 and claim 18 (since it is not in the path of the desired generated light from the lamp, but instead blocks light scattered in an undesired direction). Thus Keeffe cannot provide a valid basis for a case of *prima facie* obviousness of amended claim 1 and new claim 18 and the claims that depend on them.

The principle that merely rearranging the parts of a previously known apparatus does not result in a patentable apparatus only applies if (1) the rearranged parts are the same and (2) the result does not involve a fundamental change in the operation of the apparatus. First, there is no part disclosed in Keeffe, which is the same as the applicants' mat, because the mat of claim 1 necessarily has a different structure and effect on light reaching it than the wire mesh of fig. 3 of Keeffe. Second the reflector claimed in amended claim 1 and 18 operates in a different way from the reflectors shown in figs. 12 and 13 of Keeffe, because the applicants' reflector masks scattered light and avoids thermal stresses in the base body so that it can be made of certain types of glass and still operate at high temperatures up to 600°C.

With respect to claim 8 Keeffe does not disclose or suggest bonding the wire mesh of fig. 3 to the shield 28 with glue. Due to the close proximity to the very hot light source it would probably not be possible to do that. Instead Keeffe suggests that the mesh is attached with straps or embedded in the glass of the shield, which adds additional production steps, in the description of fig. 3 in the detailed description of Keeffe. In contrast because the mat is provided on the outer surface of the base body, which is comparatively poorly thermally

conductive glass or glass ceramic, the mat can be attached with an adhesive to the glass or glass ceramic base body.

Thus if the mat is equivalent to the wire mesh disclosed by Keeffe Keeffe does not suggest attachment by means of adhesive and appears to effectively teach away from attachment by adhesive.

For the foregoing reasons withdrawal of the rejection of amended claim 1 and claims 2, 5, 8, 12 to 13 and 15 to 16 as obvious under 35 U.S.C. 103 (a) over Keeffe, et al (U.S. 4,888,517), is respectfully requested.

It is also respectfully requested that new claims 17 to 20 should not be rejected over any of the cited prior art.

III. Obviousness; Rejection based on Keeffe, et al, and Karlotski

Claim 4 was rejected as obvious under 35 U.S.C. 103 (a) over Keeffe, et al (U.S. 4,888,517), in view of Karlotski.

Claim 4 claims a mat comprising ceramic fibers.

The disclosures of Keeffe, et al, have been summarized above. Karlotski discloses a light structure that is similar to that of figs. 3 to 5 of Keeffe, et al. A cylindrical shield is placed around a high-pressure gas discharge light source inside of an outer envelope of the light. A web or mesh of ceramic fibers is wound around the shield in the structure of Karlotski.

Thus Karlotski suffers from the same deficiencies as Keeffe, et al, as a reference to use to reject the claimed invention in amended claim 1 and claim

18 under 35 U.S.C. 103 (a). The web or mesh of Karlotski cannot be the same as the mat of ceramic fibers of claim 4 because the mat must have a sufficiently small mesh size so that it will provide light protection whereas the web or mesh of Karlotski must pass most of the light that reaches it, otherwise it impairs light yield too much.

Also Karlotski does not provide any hint or suggestion to replace a plastic (fluoro-alkoxy resin) coating on the outer surface of the outer envelope of the embodiment of figure 10 of Keeffe with a mat or to include a mat in it, as claimed in amended claim 1. Neither reference provides this sort of suggestion.

For the foregoing reasons and because of the changes in claim 1, withdrawal of the rejection of claim 4 under 35 U.S.C. 103 (a) over Keeffe, et al (U.S. 4,888,517), in view of Karlotski, is respectfully requested.

IV. Obviousness Rejection based on Keeffe, et al, and Horelick

Claims 6, 11 and 14 were rejected as obvious under 35 U.S.C. 103 (a) over Keeffe, et al (U.S. 4,888,517), in view of Horelick.

Claim 6 claims a protective mat comprising a fleece of e.g. glass or ceramic fibers.

The disclosures of Keeffe, et al, have been summarized above. Horelick discloses a simulated gas light that has a glass woven mesh around the outer envelope of a lamp.

Thus Horelick suffers from the same deficiencies as Keeffe, et al, as a reference to use to reject the claimed invention in amended claim 1 and claim 18 under 35 U.S.C. 103 (a). The glass woven web or mesh of Horelick cannot be the same as the fleece of e.g. glass fibers of claim 6 because the fleece must have a sufficiently small mesh size so that it will provide light protection whereas the glass web or mesh of Horelick must pass most of the light that reaches it, otherwise it impairs light yield too much.

Also Horelick does not provide any hint or suggestion to replace a plastic (fluoro-alkoxy resin) coating on the outer surface of the outer envelope of the embodiment of figure 10 of Keeffe with the claimed fleece or to include the fleece in it, as claimed in amended claim 1. Neither reference provides this sort of suggestion.

For the foregoing reasons and because of the changes in claim 1, withdrawal of the rejection of claim 6, 11 and 14 under 35 U.S.C. 103 (a) over Keeffe, et al (U.S. 4,888,517), in view of Horelick, is respectfully requested.

V. Information Disclosure Statement

Applicants filed an Information Disclosure Statement with two prior art references in December 29, 2003. A copy of this Information Disclosure Statement was not returned with the Office Action. Applicants respectfully request consideration of the two prior art references, namely US Patent 4,875,766 and DE 198 37 768 A1 (English Abstract), and return of the

Information Disclosure Statement with the next Office Action with initials of the Examiner in the appropriate locations indicating that these references were considered.

Should the Examiner require or consider it advisable that the specification, claims and/or drawing be further amended or corrected in formal respects to put this case in condition for final allowance, then it is requested that such amendments or corrections be carried out by Examiner's Amendment and the case passed to issue. Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing the case to allowance, he or she is invited to telephone the undersigned at 1-631-549 4700.

In view of the foregoing, favorable allowance is respectfully solicited.

Respectfully submitted,



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